

AUSTRALIAN TABANIDÆ. No. i.

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(From The Australian Institute of Tropical Medicine.)

The species of the genus *Silvius*, Subfamily *Pangoninae*, occurring in Australia, are more commonly found in those parts north of the Tropic of Capricorn than elsewhere, as only two species are known from localities further south, namely, *S. silvester* Berg., and *S. australis* Ricardo; the latter, however, also occurs at Townsville.

Walker (1848) described *S. marginatus* from Port Essington, placing it in the genus *Tabanus*; and, in 1857, he described *S. nitescens* from Australia. From that time, until Bergroth (1894) described *S. silvester* from Duaringa, no new Australian species were added. Then Summers (1912) described three new species, *S. masoni*, *S. alcocki*, and *S. strangmani*, all from the Northern Territory.

The present paper adds eight new species to the genus, bringing the total to fourteen species occurring in Australia. There still remain two species, held over for the present, in the Institute Collection, besides four others, descriptions of which, Miss Ricardo informs me, will shortly be published in the Annals and Magazine of Natural History.

The type-specimens are in the Institute Collection.

SILVIUS HILLI, sp.n.

♀. Length, 11-13; width of head, 4.4-2; width of front at vertex, 0.5-0.7; length of wing, 9.8-11 mm.

Head: front grey, with a creamy tinge, black when denuded, with a moderately deep groove running from the apex of the frontal callus to the ocellar triangle; face pale ochraceous, white

beneath, clothed with white hairs; frontal callus black, shining, as wide as the front, with its lower edge resting on the subcallus, upper edge convex; ocellar triangle ochraceous, with a brown tinge, ocelli light brown, shining, moderately prominent; antennæ with the first segment greyish, clothed with black, appressed hairs, and about thrice the length of the second segment, the latter short, yellowish, with an apical fringe of black hairs, the third segment yellowish, the base forming a broad triangle; palpi yellow, clothed with minute, appressed, black hairs, first joint cylindrical, second joint basally swollen and gradually tapering towards the apical end, the distal third almost cylindrical, with the apex dark; eyes bronzy-black.

Thorax dull reddish-brown, clothed with dull pale creamy-white, appressed hairs, ventral surface darker, clothed with creamy-white, semi-erect hairs, prealar border-hairs dark and moderately long; scutellum similar.

Abdomen : dorsal surface with a narrow, median, longitudinal stripe of grey hairs; first three segments yellowish-brown, remaining segments brownish-black, clothed with semi-erect, black hairs, longest towards the apex; *venter* with the first four segments reddish-brown, the remaining segments dark brown.

Wings slightly dusky, veins dark brown except the subcostal and first longitudinal veins, which are pale; stigma very pale, inconspicuous; the anterior branch of the third, longitudinal vein with a short appendix (in one specimen, it is *very* short); squamæ brownish, tinged with yellow; halteres brown, the knob with a yellowish tinge in some lights.

Legs reddish-brown, clothed with short, appressed, black hairs, femora also clothed with moderately long, pale, erect hairs, the second to fifth tarsi darker; spur on hind tibiæ small, reddish-brown, and not easily seen unless the tarsi are bent at an angle to the tibiæ.

Hab. - Howard Creek, Stapleton, Northern Territory : (G. F. Hill; No.57).

This species is very distinct from its Australian congeners, owing to its size and colour. In size, it is most nearly related to

S. indistinctus Ricardo; while, in colour, it resembles, in some degree, *S. sordidus* mihi, but it is markedly distinct from both species. Cotype in Coll. Hill.

SILVIUS SORDIDUS, sp.n.

♀. Length, 10·7-11; width of head, 4; width of front at vertex, 0·5-0·75; length of wing, 8·7-9 mm.

Head grey, clothed with fairly long, grey hair; front ochraceous; frontal callus shining-black, nearly quadrate, with its upper edge finishing in a blunt point, and with a shallow groove dividing it into two parts, about two-thirds the width of the front at its base, not quite resting on the subcallus, the latter denuded, glossy black; ocelli black, prominent; eyes deep greyish-black, their inner margins parallel; first two segments of antennæ golden-yellow, clothed with short, black hairs on their dorsal apices, second segment with an apical fringe of black hairs also, third segment yellowish-brown; palpi pale golden-yellow, with truncate, brown apices, scarcely two-thirds the length of the proboscis, the latter black.

Thorax grey-brown, black when denuded, clothed with scanty golden hairs; scutellum similar to thorax; pleuræ and pectus clothed with greyish-white hairs.

Abdomen: the first three segments cinnamon-brown (in one specimen, the first two segments only are cinnamon-brown), the remainder dusky-brown, clothed with brown hairs, segments three to six with small, median, apical spots of golden hairs; venter brown, changing to dusky-brown toward the apex, clothed with greyish bloom.

Legs: coxæ and basal half of femora slaty-grey, apical half of femora and tibiæ pale reddish-brown, tarsi dusky-brown; tibial spurs on midlegs dark brown, fairly long, conspicuous, those on the hindlegs short and inconspicuous.

Wings hyaline; veins dark brown, except the first longitudinal, which is light brown; stigma lemon-yellow, elongate, inconspicuous; squamæ pale creamy, edges brown; halteres brownish.

Hab.—Stapleton, Batchelor, Northern Territory (G. F. Hill).

Described from two specimens. Allied to *S. borealis* mihi, but it is a more slender species. For other differences, see under that species. Cotype in Coll. Hill.

SILVIUS BOREALIS, sp.n.

♀. Length, 10·25; width of head, 4; width of front at vertex, 0·5; length of wing, 9·5 mm.

Head grey, clothed with grey hairs, basioccipital region very pale ochraceous; eyes with inner margins parallel, the upper third dull black, lower two-thirds with three, horizontal rows of dull fiery-red, and two of pale purplish-blue, the rows alternating; front rusty-brown, the edges grey; frontal callus irregularly triangular, shining-black, tumid, apex drawn out to a point, and terminating about the middle of the front; ocelli shining-black, conspicuous; subcallus pale ochraceous, first segment of antennæ dusky-brown, swollen, clothed with scattered, semi-erect, black hairs, second and third segments pale vandyke-brown, the former very short, with a few, scattered, black, semi-erect hairs, base of the latter broadly triangular; palpi yellowish, tips brown, truncate, slender, about two-thirds the length of the proboscis, the latter black.

Thorax dull reddish-brown, with a faint, black, median, longitudinal stripe, clothed with mixed grey and dusky hairs, lateral margins clothed with moderately long, dusky hairs in front of the wings; scutellum similar to the thorax, but with the apical half brighter reddish-brown; pleuræ and pectus dusky, the former tinged with brown on the upper margins.

Abdomen reddish-brown, becoming darker towards the apex, densely clothed with semi-erect, black hairs; venter reddish-brown, clothed with scanty, pale hairs on the apices of the segments.

Wings moderately broad and elongate, veins on apical half of wing black, paler on the basal half, anterior branch of the third, longitudinal vein with a short appendix; stigma elongate, narrow, inconspicuous, pale yellow; squamæ with a faint, yellowish tinge; halteres mummy-brown, knobs creamy.

Legs: fore-femora dark reddish-brown, dusky in some lights, tibiæ with the basal half light brown, remainder and first four tarsi dusky, fifth tarsals brown; mid- and hind-femora reddish-brown, apices paler, tibiæ light brown, apices darker; tarsi brown, in some lights dusky; femora clothed with brown hairs, tibiæ and tarsi with black; mid-tibial spurs long, on the hind short and inconspicuous.

Hab.—Howard Creek, Northern Territory (G. F. Hill; No.58).

Described from a single specimen, presented to the Institute by Mr. Hill. This species is related to *S. sordidus* mihi. The abdomen is wider, however, than the thorax, whereas, in the latter species, it is uniform in width. The abdomen has an opalescent sheen, which is lacking in *S. sordidus* mihi.

SILVIUS FULIGINOSUS, sp.n.

♀. Length, 11.2; width of head, 4.2; width of front at vertex, 0.7; length of wing, 9.2 mm.

Head dusky, clothed with grey hairs beneath, subcallus denuded, shining-black; front a dirty-brown; ocelli deep brown; frontal callus shining-black, more or less quadrate, with the upper angles rounded; palpi dark yellowish-brown, with truncate, dusky apices, about two-thirds the length of the proboscis; antennæ reddish-brown, the distal end of first segment swollen, about twice the diameter of the base, second segment very short, both segments clothed with black hairs, third segment with the base broadly triangular; proboscis black; eyes blue-black, with coppery reflections, their inner margins converging towards the base.

Thorax dark brown, covered with grey bloom, with four, longitudinal stripes, two submedian, the others lateral, clothed with short, golden hairs, with a prealar border of mixed grey and dark hairs; pleuræ and pectus slaty-grey, clothed with grey hairs; scutellum slaty-grey.

Abdomen black, clothed with black hairs, segments two to four with the apical edges pale, clothed with pale hairs, segments three to six with traces of white, median, apical spots; venter with the first two segments dusky-brown, remaining segments

black, all the segments with the apical margins pale yellowish-brown.

Legs reddish-brown, clothed with pale hairs, tarsi darker, tibial spurs black, on midlegs fairly long and conspicuous, on hindlegs short and inconspicuous.

Wings with the veins yellowish-brown on the basal half, the remainder black; stigma pale yellow, elongate, inconspicuous; squamæ pale yellow, edges brown; halteres reddish-brown.

Hab.—Stapleton, Northern Territory (G. F. Hill; No.36).

SILVIUS TRYPPERUS, sp.n.

♀. Length, 7; width of head, 2.25; width of front at vertex, 0.25; length of wing, 6.7 mm.

Head: front cinereous, densely clothed with minute, grey hairs; face grey, clothed with moderately long, greyish hairs; subcallus grey; frontal callus dark reddish-brown, prominent, nearly as broad as the front at its base, almost resting on the subcallus, and gradually tapering to a blunt point near the ocellar triangle; ocelli shining-brown, inconspicuous; eyes dull black, nude, with their inner margins gradually sloping inwards towards the vertex; antennæ with the first two segments yellow, and clothed with fairly long, semi-appressed hairs, third segment with the base light yellowish-brown, clothed with minute, appressed, pale hairs, and forming a broad triangle, annuli dark brown; palpi yellow, sparsely clothed with semi-erect, black hairs, and slightly more than half the length of the proboscis, the latter comparatively short, dark brown, clothed with erect, brown hairs, fairly long on its apex.

Thorax reddish-brown, clothed with grey bloom and golden, appressed hairs; pleuræ similar to the thorax, thinly clothed with erect, grey hairs; scutellum similar to thorax.

Abdomen: first two segments reddish-brown, the remaining segments dark brown, clothed with grey bloom, and golden, appressed hairs; venter dark brown, clothed with grey bloom, with fairly long, semi-erect hairs at its apex.

Wings hyaline; stigma elongate, yellowish-brown, moderately conspicuous; veins yellowish-brown; squamæ grey, with pale brown edges; halteres brown.

Legs reddish-brown, clothed with semi-erect, dark hairs; tarsi darker than femora and tibiæ; tibial spurs brown, very short.

Hab.—Booroolooloo, Northern Territory.

Described from a single specimen, collected by Mr. H. S. Giles, January, 1912, and presented to the Institute. It is a small, and dingy species, which distinguishes it from other Australian species.

SILVIUS ELONGATULUS, sp.n.

♀. Length, 7.5-9; width of head, 2.1-2.5; width of front at vertex, 0.2-0.3; width across lower edge of frontal callus, 0.5-0.75; length of wing, 7.8-8 mm.

Head: front grey, tinged with pale brown; ocellar triangle light brown; ocelli light brown; frontal callus shining, dark reddish-brown, broadly wedge-shaped, the lower edge slightly rounded, and nearly resting on the subcallus; eyes black, naked, their inner margins converging towards the apex; face dark grey, clothed with grey hair; antennæ with first segment dark reddish-brown, fairly long, second segment about one-third of the length of the first, slightly paler, both clothed with black hairs, base of third segment bright reddish-brown, broadly triangular, annuli dark brown; palpi brown, about two-thirds the length of the proboscis, the latter comparatively long.

Thorax uniform, dull reddish-brown, clothed with a moderately dense covering of dull, golden bloom, and brown hair; scutellum brown, covered with grey bloom; pleuræ and pectus dark brown, covered with grey bloom.

Abdomen brown, with the posterior margins of the segments pale, giving the abdomen a banded appearance; venter brown, clothed with greyish-white bloom, and scattered, pale hairs.

Legs: femora, tibiæ, and tarsi dark reddish-brown; femora clothed with grey hairs; tibiæ and tarsi clothed with dark brown hairs, knees pale; tibial spurs reddish-brown, spurs on hind-tibiæ about half the length of those on the mid-tibiæ.

Wings hyaline, veins dark; stigma light amber, elongate; squamæ creamy; halteres with the stem ochraceous, the knob black.

Hab.—Batchelor, Stapleton, Northern Territory (G. F. Hill; No. 35).

Described from specimens forwarded to the Institute by Mr. Hill. This is a somewhat elongate species, and most nearly allied to *S. australis* Ricardo. Cotype in Coll. Hill.

SILVIUS TABANIFORMIS, sp.n.

♀. Length, 10; width of head, 4; width of front at vertex, 0.5; length of wing, 9 mm.

Head: face grey, with a scanty, grey beard; front black, ochraceous between the frontal and subcalli, the former black, pear-shaped, tumid, shiny; subcallus shining-black; first and second segments of antennæ dull golden, the first with prominent, black, apical hairs, third segment light testaceous, base broadly triangular, annuli brown; palpi light testaceous, about two-thirds the length of the proboscis, the latter pitchy black; eyes deep greenish-black, the inner margins slightly converging towards the base; ocelli black.

Thorax black, clad with numerous, appressed, golden hairs; pleuræ black, clothed with grey hairs, fairly long at the wing-roots; scutellum similar to thorax.

Abdomen black, anterior portion of first and second segments light brown, posterior margin of all segments brown, clothed with pale hairs, and a small, median, apical patch of pale hairs, giving the segments a striped appearance; venter with the first three segments mummy-brown, the remainder dark brown.

Wings hyaline; veins dark brown; stigma elongate, inconspicuous, pale cream; squamæ grey; halteres brown, knobs creamy.

Legs: forelegs black, knees and basal two-thirds of tibiæ mummy-brown; in the midlegs, the apical two-thirds of femora, the tibiæ and first two tarsals mummy-brown, remainder black; the hindlegs with the apical third of the femora, tibiæ, and first two tarsals mummy-brown, the rest black, the femora and tibiæ

clothed with grey hairs; spurs conspicuous on the mid-tibiæ, minute on the hind.

Hab.—Thirty miles N.E. of Darwin, Northern Territory (G. F. Hill; No.100).

This is a very distinct, and *Tabanus*-like species, and quite unlike other Australian species in general appearance.

SILVIUS FULVOHIRTUS, sp.n.

♀. Length, 11·5; width of head, 4; width of front at vertex, 0·6; length of wing, 9 mm.

Head with the front golden-yellow; subcallus buff; face light buff, cheeks pale creamy; beard grey; frontal callus pale lemon-yellow, pear-shaped, tumid, with a yellow, lineal extension reaching the ocellar triangle, the latter clad with numerous, fairly long, black hairs; ocelli black; antennæ with first two segments bright golden, with scattered, black hairs, and an apical fringe, third segment testaceous; palpi orange, with minute, black hairs; eyes black (green when alive), their inner margins converging towards the base.

Thorax yellow, clothed with short, appressed, yellow hairs; scutellum yellow, clothed with erect, yellow hairs, ground-colour of both black; pleuræ grey.

Abdomen with the first two segments pale tawny, third and fourth dark brown, fifth and sixth dusky, posterior margins paler in segments three to the apex; venter similar to dorsum.

Legs with the coxæ and trochanters greyish, clothed with fairly long, grey hairs; femora tawny, clothed with grey hairs, the apical third of the first with black hairs; tibiæ brown, apices dark brown; tarsi black, tarsi and tibiæ clothed with black hairs; mid-tibial spurs black, prominent, hind inconspicuous.

Wings faintly dusky; veins brown; anterior branch of third long vein with a small appendix, stigma brown, faintly yellow on the edge at apex; squamæ orange; halteres-stems orange, knobs brown.

Hab.—Townsville, Queensland (F. H. Taylor; January, 1914).

Described from a single specimen, which was taken in conjunction with other Tabanidæ in light scrub-country. It is a very distinct and easily recognisable species.

SILVIUS ALCOCKI Summers.

Ann Mag. Nat. Hist., ser.8, Vol. x , p.227 (1912).

Specimens forwarded from Darwin, Northern Territory, by Mr. Hill, show some discrepancies from Miss Summers' description; but until a specimen has been compared with the type, it is better to leave them under the above name.

I have been unable to determine *S. mansoni* and *S. strangmani* of Summers, in the material sent by Mr. Hill.

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